

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (previously presented) An optical cross-connect switch for routing optical multiplexed signals in an optical transport network, comprising:

a plurality of signal splitters, each signal splitter having an input for receiving an optical multiplexed signal therein and a plurality of outputs, each signal splitter further operable to partition the optical multiplexed signal into a plurality of optical multiplexed signals;

a plurality of wavelength selective devices connected to the plurality of signal splitters, such that a wavelength selective device is disposed at each output of each signal splitter, each wavelength selective device receiving an optical multiplexed signal therein and operable at different wavelengths to manipulate optical data signals embodied in the optical multiplexed signal, wherein the plurality of wavelength selective devices are defined as wavelength selective switches and wavelength selective blockers arranged in a cascading manner, where the wavelength selective devices switches are connected to the outputs of the plurality of signal splitters and a plurality of wavelength selective blockers are interposed between the plurality of wavelength selective switches and the plurality of signal combiners, such that the number of wavelength selective switches is $\lceil (N/2) \rceil * \lceil (N/2) \rceil$, and the number of wavelength selective

blockers is $N * \lceil N/2 \rceil$, where N is the number of inlet ports supported by the cross-connect switch and the ceiling function $\lceil x \rceil$ is defined as the smallest integer greater or equal than x;

at least one of the plurality of wavelength selective devices is further defined as a wavelength selective switch having at least two inputs, a first input for receiving the optical multiplexed signal from a signal splitter and a second input for introducing an additional optical multiplexed signal into the cross-connect switch; and

a plurality of signal combiners connected to the plurality of wavelength selective devices, such that each signal combiner is adapted to receive an optical multiplexed signal via a wavelength selective device from each of the plurality of signal splitters, each signal combiner operable to pass the optical multiplexed signal to an outlet port of the cross-connect switch.

2. (original) The optical cross-connect switch of Claim 1 wherein the plurality of wavelength selective devices cooperatively operate to route incoming optical multiplexed signals amongst outlet ports of the cross-connect switch.

3. (original) The optical cross-connect switch of Claim 1 wherein each of the wavelength selective device is operable to at least one of pass thru, route, or block the optical multiplexed signal received therein.

4. cancel

5. (original) The optical cross-connect switch of Claim 1 wherein each signal splitter is connected to at least one wavelength selective switch, thereby providing signal add/drop capability.

6. (original) The optical cross-connect switch of Claim 5 wherein each signal splitter is connected to at least two wavelength selective switches, thereby providing redundant signal add/drop capability.

7. cancel

8. (currently amended) The optical cross-connect switch of Claim 1 5 wherein the at least one wavelength selective switch having at least two outputs, a first output connected to a signal combiner and a second output for dropping one or more optical data signals embodied in the optical multiplexed signal from the switch.

9. – 16. cancel

17. (previously presented) An optical cross-connect switch for routing optical multiplexed signals in an optical transport network, comprising:

a plurality of inlet ports, each inlet port receiving an optical multiplexed signal therein;

a plurality of signal splitters connected to the plurality of inlet ports, each signal splitter receiving an optical multiplexed signal from one of the plurality of inlet ports and operable to partition the optical multiplexed signal into a plurality of optical multiplexed signals;

a plurality of wavelength selective devices connected to the plurality of signal splitters, each wavelength selective device receiving an optical multiplexed signal from a signal splitter and operable to manipulate optical data signals that are transmitted at different wavelengths and embodied in the optical multiplexed signal; and

a plurality of signal combiners connected to the plurality of wavelength selective devices, such that each signal combiner is adapted to receive an optical multiplexed signal via a wavelength selective device from each of the plurality of inlet ports, with the exception of a complementary inlet port; and

a plurality of outlet ports, each outlet port receiving an optical multiplexed signal from one of the plurality of signal combiners

wherein the plurality of wavelength selective devices are defined as wavelength selective switches and wavelength selective blockers arranged in a cascading manner, such that a plurality of wavelength selective switches are connected to the outputs of the plurality of signal splitters and a plurality of wavelength selective blockers are interposed between the plurality of wavelength

selective switches and the plurality of signal combiners, such that the number of wavelength selective switches is $\lceil (N/2) \rceil * \lceil (N/2) - 1 \rceil$, and the number of wavelength selective blockers is $N*(N/2)$ for an even number of inlet ports and $((N+1)*(N/2))-1$ for odd number of inlet ports, where N is the number of inlet ports supported by the cross-connect switch and the ceiling function $\lceil x \rceil$ is defined as the smallest integer greater or equal than x .

18. (original) The optical cross-connect switch of Claim 17 wherein the plurality of wavelength selective devices cooperatively operate to route incoming optical multiplexed signals amongst the plurality of outlet ports of the cross-connect switch.

19. (original) The optical cross-connect switch of Claim 17 wherein the plurality of wavelength selective devices are further defined as either wavelength selective blockers, wavelength selective switches or a combination thereof.

20. (original) The optical cross-connect switch of Claim 17 wherein each signal splitter includes a number of outputs that corresponds to the number of outlet ports, such that at least one of the outputs for the signal splitter is adapted to drop the optical multiplexed signal from the optical transport network.

21. (original) The optical cross-connect switch of Claim 17 wherein each signal combiner includes a number of inputs that corresponds to the number of inlet ports, such that at least one of the inputs to the signal combiner is adapted to add an additional optical multiplexed signal into the optical transport network.

22. (original) The optical cross-connect switch of Claim 17 wherein each signal combiner is adapted to receive an optical multiplexed signal from each of the plurality of inlet ports, including a complementary inlet port, thereby supporting loop-back capability.

23. - 29. cancel

30.-50. cancel